



HINGHAM CONTRIBUTORY RETIREMENT SYSTEM

ACTUARIAL VALUATION as of

January 1, 2016

Prepared by:

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November 12, 2016

Hingham Contributory Retirement Board
Town of Hingham
210 Central Street
Hingham, MA 02043

Dear Board Members:

We are pleased to present the enclosed report summarizing the results of our actuarial valuation of the Hingham Contributory Retirement System as of January 1, 2016.

Our valuation was performed in accordance with the provisions contained in Chapter 32 of the Massachusetts General Laws, "M.G.L.", as of January 1, 2016. Disclosures under GASB Statement No. 67, Financial Reporting for Pension Plans (GASB 67) and GASB Statement No. 68, Accounting and Financial Reporting for Pensions (GASB 68) are provided in a separate report.

The principal results of our valuation are summarized in Section 2. The summary of Plan provisions and actuarial methods and assumptions are shown in Sections 5 and 6, respectively. Section 7 summarizes the demographic profile of active members, retired plan members and beneficiaries and disabled plan members. Asset information and actuarial liabilities are presented in Section 2. The development of the required appropriations pursuant to Chapter 32 of the M.G.L. is shown in Section 3. The summary of information for PERAC is presented in Section 4.

We also provide a 30-year forecast of the required appropriations and cash flows in Section 3.

Our actuarial valuation is based on an investment return rate of 7.75%, compounded annually. Our calculations were based on participant census and asset data and other information provided by the Hingham Contributory Retirement System and the benefit provisions of Chapter 32 of the M.G.L. as of January 1, 2016.

K M S A C T U A R I E S

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Our valuation follows generally accepted actuarial methods and we perform such tests as we consider necessary to assure the accuracy of the results. The amounts presented in this report have been appropriately determined according to the actuarial assumptions and methods stated herein.

We appreciate this opportunity to be of service to the Hingham Contributory Retirement Board. We are available to answer any questions with respect to our valuation.

Respectfully submitted,

A handwritten signature in black ink that reads "Linda Bournival". The signature is written in a cursive style with a large, stylized "L" and "B".

Linda L. Bournival, FSA
Member, American Academy of Actuaries

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ACTUARIAL CERTIFICATION

This report presents the results of the Actuarial Valuation for the Hingham Contributory Retirement System as of January 1, 2016. The report presents the funding schedule contribution amounts for the fiscal years beginning 2018.

This valuation is based upon member data provided by the Retirement Board and asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Hingham Contributory Retirement System. Although we did not audit the data used in the valuation, we believe that the information is complete and reliable.

Future actuarial valuation results may differ significantly from the current results presented in this report. Examples of potential sources of volatility include plan experience differing from that anticipated by the economic or demographic assumptions, the effect of new entrants, changes in economic or demographic assumptions, the effect of law changes and the delayed effect of smoothing techniques.

This report was completed in accordance with generally accepted actuarial standards and procedures, and conforms to the Code of Professional Conduct of the American Academy of Actuaries. The actuarial assumptions used in the determination of costs are reasonably related to the experience of the System and to reasonable expectations, and represent our best estimate of anticipated long-term experience under the System.

This report is intended for the sole use of the Hingham Contributory Retirement System and is intended to provide information to comply with the stated purpose of the report. It may not be appropriate for other purposes.

The undersigned credentialed actuaries are Members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinion contained herein. They are available to answer any questions with regard to this report.

Respectfully submitted,



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SECTION 1 - SUMMARY

Background

We have completed the Actuarial Valuation of the Hingham Contributory Retirement System as of January 1, 2016. This valuation is based upon census data provided by the Retirement Board and asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Hingham Contributory Retirement Board. Information for the prior valuation completed as of January 1, 2014 was obtained from the valuation report prepared by KMS Actuaries, LLC.

Massachusetts General Laws

The valuation was prepared in accordance with Chapter 32 of the Massachusetts General Laws ("M.G.L."). The results are based on the active, inactive and retired members and beneficiaries as of January 1, 2016, the assets as of December 31, 2015, assumptions regarding investment returns, salary increases, death, turnover, disability and retirement.

The valuation does not take into consideration:

- Changes in the law after the valuation date,
- Transfers between retirement systems pursuant to Section 3(8)(c) of Chapter 32,
- State-mandated benefits and
- Cost-of-living increases granted to members in pay status between 1982 and 1997.

GASB Statement Numbers 67 and 68

In June 2012, the GASB approved two related Statements that significantly changed the way pension plans and governments account and report pension liabilities. Effective for plans with fiscal years beginning after June 15, 2013, GASB Statement No. 67, Financial Reporting for Pension Plans, replaced the requirements of Statement No. 25 and effective for employers with fiscal years beginning after June 15, 2014, GASB Statement No. 68, Accounting and Financial Reporting for Pensions, replaced the requirements of Statement No. 27.

The new pension standards reflect changes from those previously in place regarding how governments calculate total pension liability and pension expense. Further, the new standards contain requirements for disclosing information in the notes to financial statements and presenting required supplementary information following the notes.

The required disclosures and notes under the new GASB Statements for the fiscal year ending December 31, 2015 are provided in a separate report.

SECTION 1 - SUMMARY

Actuarial Valuation

During the two years since the last valuation, the total unfunded actuarial accrued liability of the System was expected to increase from \$41,582,030 as of January 1, 2014 to \$41,631,024 as of January 1, 2016, for a total increase of \$48,994. The actual unfunded actuarial accrued liability, before any assumption or plan changes, was \$41,090,865, resulting in an actuarial gain of \$540,159. The actuarial gain was primarily due to an asset loss of \$681,896 and a demographic experience gain of \$1,222,055. The details of the gain and loss analysis are provided in Exhibit 2.6.

Appropriations

The funding appropriation for each year is computed as the sum of the normal cost and an amortization payment to pay off the Unfunded Actuarial Liability, adjusted for annual payments of the appropriation made at the beginning of each fiscal year. The appropriation calculated as of the January 1, 2016 valuation is \$5,440,887, and is made up of a normal cost payment of \$2,042,683 and an amortization payment of \$3,398,204. The amortization method is an increasing amortization of the unfunded actuarial accrued liability at 4% over 19 years and is expected to fully pay the unfunded actuarial accrued liability by the year 2035. The development of the appropriation as of January 1, 2016 is presented in Exhibit 3.1.

For fiscal year 2017, we show the actual appropriation developed under the previous funding schedule and reported on the PERAC "Required Fiscal Year 2017 Appropriation" letter dated November 9, 2015 of \$4,468,111. For fiscal year 2018, we developed an annual appropriation of \$4,758,538, which is made up of a normal cost of \$2,166,321 and payment toward the unfunded actuarial accrued liability of \$2,592,217. The unfunded actuarial accrued liability is expected to be fully paid by 2035. The current funding schedule is shown in Exhibit 3.2.

SECTION 1 - SUMMARY

A summary of principal valuation results from the current valuation and the prior valuation follows. Changes in actuarial assumptions and methods and Plan provisions are discussed below, as well as changes in census data and asset information.

| Valuation Date | <u>1/1/2016</u> | <u>1/1/2014</u> | <u>Increase/ (Decrease)</u> |
|--|-----------------|-----------------|---------------------------------|
| Summary of Member Data | | | |
| Active Members | 648 | 597 | 8.5% |
| Average Age | 47.7 | 48.8 | (2.3%) |
| Average Service | 9.8 | 10.8 | (9.3%) |
| Valuation Salary | \$30,179,469 | \$27,037,796 | 11.6% |
| Average Salary | \$46,573 | \$45,289 | 2.8% |
| Retired Members and Beneficiaries | 306 | 280 | 9.3% |
| Average Age | 73.9 | 73.9 | 0.0% |
| Total Annual Pension | \$7,411,780 | \$6,354,824 | 16.6% |
| Average Annual Pension | \$24,222 | \$22,696 | 6.7% |
| State Reimbursed COLAs | \$78,555 | \$83,780 | (6.2%) |
| Total System-Funded Pension | \$7,333,225 | \$6,271,044 | 16.9% |
| Disabled Members | 11 | 14 | (21.4%) |
| Average Age | 69.2 | 68.6 | 0.9% |
| Total Annual Pension | \$375,598 | \$431,245 | (12.9%) |
| Average Annual Pension | \$34,145 | \$30,803 | 10.8% |
| State Reimbursed COLAs | \$6,807 | \$12,317 | (44.7%) |
| Total System-Funded Pension | \$368,791 | \$418,928 | (12.0%) |
| Inactive Members | 158 | 142 | 11.3% |
| Annuity Savings Fund | \$1,031,767 | \$824,297 | 25.2% |
| Funded Status - Market Value of Assets | | | |
| Actuarial Accrued Liability (AAL) | \$148,847,803 | \$130,408,659 | 14.1% |
| Market Value of Assets (MVA) | \$95,570,393 | \$91,719,367 | 4.2% |
| Unfunded Accrued Liability | \$53,277,410 | \$38,689,292 | 37.7% |
| Funded Status | 64.2% | 70.3% | (8.7%) |
| Funded Status - Actuarial Value of Assets | | | |
| Actuarial Accrued Liability (AAL) | \$148,847,803 | \$130,408,659 | 14.1% |
| Actuarial Value of Assets (AVA) | 101,018,828 | 88,826,629 | 13.7% |
| Unfunded Accrued Liability | \$47,828,975 | \$41,582,030 | 15.0% |
| Funded Status | 67.9% | 68.1% | (0.3%) |

SECTION 1 - SUMMARY

| Valuation Date | <u>1/1/2016</u> | <u>1/1/2014</u> | <u>Increase/ (Decrease)</u> |
|-------------------------|-----------------|-----------------|---------------------------------|
| Normal Cost | | | |
| Employer | \$1,892,683 | \$1,469,429 | 28.8% |
| Employee | 2,734,638 | 2,372,795 | 15.2% |
| Administrative Expenses | 150,000 | 150,000 | 0.0% |
| Total Normal Cost | \$4,777,321 | \$3,992,224 | 19.7% |
| Appropriations | | | |
| Fiscal Year 2016 | N/A | \$4,323,161 | N/A |
| Fiscal Year 2017 | \$4,468,111 | \$4,468,111 | 0.0% |
| Fiscal Year 2018 | \$4,758,538 | \$4,617,409 | 3.1% |
| Fiscal Year 2019 | \$5,067,843 | \$4,771,155 | 6.2% |

Actuarial Assumptions and Methods

Most of the Actuarial Assumptions and Methods used in this valuation are the same as those used in the last valuation, except the mortality tables and mortality improvement scales and the salary scales for both Group 1 and Group 4 employees have changed. Changing these assumptions resulted in a net increase in the unfunded actuarial accrued liability of \$5,375,091 and an increase in the employer normal cost of \$368,558. The Actuarial Assumptions and Methods utilized in this valuation are detailed in Section 6, Actuarial Assumptions and Methods.

Plan Provisions

The COLA base was increased from \$12,000 to \$13,000 effective July 1, 2015. Changing these plan provisions resulted in a net increase in the unfunded actuarial accrued liability of \$1,363,019 and an increase in the employer normal cost of \$38,199. All Plan provisions used in this valuation are detailed in Section 5, Summary of Plan Provisions.

Census Data

As of January 1, 2016, there are 648 active members who may be eligible for benefits in the future, 306 retirees and beneficiaries, 158 inactives and 11 disabled retirees. Summaries of the active, retired and disabled employees are included in Section 7, Demographic Information.

SECTION 1 - SUMMARY

Assets

This valuation is based upon asset information reported to the Public Employee Retirement Administration Commission (PERAC) by the Hingham Contributory Retirement Board. The market value of assets increased from \$91,719,367 as of January 1, 2014 to \$95,570,393 as of January 1, 2016. During the plan years ended 2014 and 2015, the market value rates of return were 6.67% and -0.95%, respectively.

The actuarial value of assets increased from \$88,826,629 as of January 1, 2014 to \$101,018,828 as of January 1, 2016. During the plan years ended 2014 and 2015, the rates of return on the actuarial value of assets were 8.72% and 6.07%, respectively.

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.1 - Plan Assets

Asset information is reported annually to the Public Employee Retirement Administration Commission by the Hingham Contributory Retirement System. The Market Value of Assets for the two most recent calendar years are as follows:

| Calendar Year | 2015 | 2014 |
|---|--------------|--------------|
| Trust Fund Composition at Year-End | | |
| Cash | \$524,468 | \$739,384 |
| Short-Term Investments | 0 | 0 |
| Fixed Income Securities | 0 | 0 |
| Equities | 0 | 0 |
| Pooled Short Term Funds | 0 | 0 |
| Pooled Domestic Equity Funds | 25,796,886 | 26,747,109 |
| Pooled International Equity Funds | 13,934,234 | 13,788,775 |
| Pooled Global Equity Funds | 0 | 0 |
| Pooled Domestic Fixed Income Funds | 17,169,704 | 18,490,574 |
| Pooled International Fixed Income Funds | 8,557,766 | 9,021,991 |
| Pooled Global Fixed Income Funds | 0 | 0 |
| Pooled Alternative Investments | 2,214,585 | 935,299 |
| Pooled Real Estate Funds | 11,014,578 | 9,892,844 |
| Pooled Domestic Balanced Funds | 0 | 0 |
| Pooled International Balanced Funds | 9,413,329 | 10,836,372 |
| Hedge Funds | 4,734,093 | 4,823,812 |
| PRIT Cash | 40 | 20,030 |
| PRIT Fund | 2,100,160 | 1,734,165 |
| Interest Due & Accrued | 0 | 0 |
| Prepaid Expenses | 0 | 0 |
| Accounts Receivable | 123,874 | 112,697 |
| Land | 0 | 0 |
| Buildings | 0 | 0 |
| Accumulated Depreciation - Buildings | 0 | 0 |
| Accounts Payable | (13,324) | (14,215) |
| Total Market Value of Assets | \$95,570,393 | \$97,128,837 |

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.1 - Plan Assets

| Calendar Year | 2015 | 2014 |
|--------------------------------------|---------------------|---------------------|
| Funds | | |
| Annuity Savings Fund | \$25,706,050 | \$24,791,805 |
| Annuity Reserve Fund | 6,463,632 | 5,841,265 |
| Military Service Fund | 5,548 | 14,526 |
| Pension Fund | 4,572,100 | 4,975,373 |
| Expense Fund | 0 | 0 |
| Pension Reserve Fund | 58,823,063 | 61,505,868 |
| Total Market Value of Assets | <u>\$95,570,393</u> | <u>\$97,128,837</u> |
| Asset Activity | | |
| Market value as of Beginning of Year | \$97,128,837 | \$91,719,367 |
| Contributions and Receipts | 7,507,768 | 7,127,494 |
| Benefit Payments and Expenses | (8,145,549) | (7,811,033) |
| Investment Return | (920,663) | 6,093,009 |
| Market Value as of End of Year | <u>\$95,570,393</u> | <u>\$97,128,837</u> |
| Computed Rate of Return | -0.95% | 6.67% |

Returns and annualized past returns developed by PERAC are shown below. Information is obtained from the Annual Investment Reports published by PERAC for the years shown.

| Year | 1-Year Return | 5-Year Return | Return (Since 1985) |
|------|---------------|---------------|---------------------|
| 2015 | -0.49% | 6.31% | 9.01% |
| 2014 | 7.21% | 9.16% | 9.34% |
| 2013 | 12.37% | 11.22% | 9.42% |
| 2012 | 12.19% | 1.35% | 9.31% |
| 2011 | 0.97% | 1.32% | 9.21% |
| 2010 | 13.56% | 4.34% | 9.54% |
| 2009 | 17.75% | 4.19% | 9.38% |
| 2008 | -29.39% | 3.56% | 9.04% |
| 2007 | 12.02% | 16.35% | 11.12% |
| 2006 | 16.92% | 11.64% | 11.08% |
| 2005 | 12.75% | 7.03% | 10.81% |
| 2004 | 14.25% | 4.24% | 10.72% |

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.1 - Plan Assets

| Valuation Date | 1/1/2016 | 1/1/2015 | 1/1/2014 | |
|--|---------------|-------------------------------|-------------------------------|-------------------------------|
| 1. Market Value of Assets as of prior January 1 | \$97,128,837 | \$91,719,367 | \$81,569,742 | |
| a. Prior Year Contributions and Receipts | 7,507,768 | 7,127,494 | 7,435,310 | |
| b. Prior Year Benefit Payments and Expenses | (8,145,549) | (7,811,033) | (7,264,781) | |
| c. Expected Investment Return Rate | 7.75% | 7.75% | 8.00% | |
| d. Expected Investment Return | 7,502,771 | 7,081,764 | 6,532,401 | |
| e. Expected Market Value of Assets as of Valuation Date | \$103,993,827 | \$98,117,592 | \$88,272,672 | |
| 2. Prior Year Gain / (Loss) | | | | |
| a. Market Value of Assets as of January 1 | \$95,570,393 | \$97,128,837 | \$91,719,367 | |
| b. Expected Market Value of Assets | 103,993,827 | 98,117,592 | 88,272,672 | |
| c. Prior Year Gain / (Loss) | (8,423,434) | (988,755) | 3,446,695 | |
| 3. Phase-In of Asset Gains and Losses | | | | |
| Plan Year | Gain / (Loss) | Unrecognized Gain / (Loss) | Unrecognized Gain / (Loss) | Unrecognized Gain / (Loss) |
| a. 2015 | (\$8,423,434) | (\$6,738,747) | - | - |
| b. 2014 | (988,755) | (593,253) | (791,004) | - |
| c. 2013 | 3,446,695 | 1,378,678 | 2,068,017 | 2,757,356 |
| d. 2012 | 2,524,437 | 504,887 | 1,009,775 | 1,514,662 |
| e. 2011 | (5,097,233) | - | (1,019,447) | (2,038,893) |
| f. 2010 | 3,298,066 | - | - | 659,613 |
| g. Total deferred gains/(losses) | | (5,448,435) | 1,267,341 | 2,892,738 |
| 4. Actuarial Value of Assets | | | | |
| a. Market Value of Assets Less Unrecognized Gain / (Loss) | | \$101,018,828 | \$95,861,496 | \$88,826,629 |
| b. 90% of Market Value of Assets | | 86,013,354 | 87,415,953 | 82,547,430 |
| c. 110% of Market Value of Assets | | 105,127,432 | 106,841,721 | 100,891,304 |
| d. Actuarial Value of Assets, a., but not less than b. and not greater than c. | | \$101,018,828 | \$95,861,496 | \$88,826,629 |
| e. Ratio of Actuarial Value of Assets to Market Value of Assets | | 105.70% | 98.70% | 96.85% |
| 5. Rate of Return on Actuarial Value of Assets for Prior Calendar Year | | 6.07% | 8.72% | 10.38% |

SECTION 2 - PRINCIPAL VALUATION RESULTS

The **Actuarial Present Value of Future Benefits** is the present value of the cost to finance all benefits payable in the future, discounted to reflect the probability of payment and the time value of money. Below is the Actuarial Present Value of Future Benefits from the current valuation and the prior valuation:

Exhibit 2.2 - Actuarial Present Value of Future Benefits

| Valuation Date | <u>1/1/2016</u> | <u>1/1/2014</u> |
|---|----------------------|----------------------|
| Actives | | |
| Superannuation | \$97,504,437 | \$83,657,268 |
| Termination | 2,593,603 | 2,153,250 |
| Death | 4,092,425 | 4,084,367 |
| Disability | 10,287,469 | 8,552,121 |
| Total Actives | <u>\$114,477,934</u> | <u>\$98,447,006</u> |
| Retired Members and Inactives | | |
| Retired Members and Beneficiaries | \$68,573,719 | \$57,042,154 |
| Disabled Members | 3,786,368 | 4,135,337 |
| Inactive Members | 1,031,767 | 824,297 |
| Total Retired Members and Inactives | <u>\$73,391,854</u> | <u>\$62,001,788</u> |
| Total Present Value of Future Benefits | \$187,869,788 | \$160,448,794 |

The **Actuarial Accrued Liability** is the portion of the Actuarial Present Value of Future Benefits which is allocated to all periods prior to a valuation year and therefore is not provided for by future Normal Costs. Below is the Actuarial Accrued Liability from the current valuation and the prior valuation:

Exhibit 2.3 - Actuarial Accrued Liability

| Valuation Date | <u>1/1/2016</u> | <u>1/1/2014</u> |
|--|----------------------|----------------------|
| Actives | | |
| Superannuation | \$69,221,029 | \$62,148,543 |
| Termination | 780,260 | 747,854 |
| Death | 1,487,533 | 1,886,119 |
| Disability | 3,967,127 | 3,624,355 |
| Total Actives | <u>\$75,455,949</u> | <u>\$68,406,871</u> |
| Retired Members and Inactives | | |
| Retired Members and Beneficiaries | \$68,573,719 | \$57,042,154 |
| Disabled Members | 3,786,368 | 4,135,337 |
| Inactive Members | 1,031,767 | 824,297 |
| Total Retired Members and Inactives | <u>\$73,391,854</u> | <u>\$62,001,788</u> |
| Total Actuarial Accrued Liability | \$148,847,803 | \$130,408,659 |

SECTION 2 - PRINCIPAL VALUATION RESULTS

The **Normal Cost** is the portion of the Actuarial Present Value of Future Benefits which is allocated to a valuation year. Only active employees who have not reached Normal Retirement Age incur a Normal Cost. Below is the Normal Cost from the current valuation and the prior valuation:

Exhibit 2.4 - Normal Cost

| Valuation Date | <u>1/1/2016</u> | <u>1/1/2014</u> |
|--------------------------------|-----------------|-----------------|
| Actives | | |
| Superannuation | \$3,302,922 | \$2,714,571 |
| Termination | 389,903 | 322,252 |
| Death | 318,160 | 290,164 |
| Disability | 616,336 | 515,237 |
| Total Actives | \$4,627,321 | \$3,842,224 |
| As of Percentage of Salary | 15.3% | 14.2% |
| Administrative Expenses | \$150,000 | \$150,000 |
| As of Percentage of Salary | 0.5% | 0.6% |
| Total Normal Cost | | |
| Normal Cost | \$4,777,321 | \$3,992,224 |
| As a Percentage of Salary | 15.8% | 14.8% |
| Employee Normal Cost | | |
| Employee Contributions | \$2,734,638 | \$2,372,795 |
| As a Percentage of Salary | 9.1% | 8.8% |
| Employer Normal Cost | | |
| Employer Normal Cost | \$2,042,683 | \$1,619,429 |
| As a Percentage of Salary | 6.8% | 6.0% |

Exhibit 2.5 - Unfunded Actuarial Accrued Liability

| Valuation Date | <u>1/1/2016</u> | <u>1/1/2014</u> |
|---|-----------------|-----------------|
| Unfunded Actuarial Accrued Liability | | |
| a. Actuarial Accrued Liability | \$148,847,803 | \$130,408,659 |
| b. Actuarial Value of Assets | 101,018,828 | 88,826,629 |
| c. Unfunded Actuarial Accrued Liability (a. - b.) | \$47,828,975 | \$41,582,030 |
| d. Funded Ratio (b. divided by a.) | 67.9% | 68.1% |

SECTION 2 - PRINCIPAL VALUATION RESULTS

Exhibit 2.6 - Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding mortality, retirement, disability and withdrawal rates as well as salary increases and investment returns. A comparison of the results of the current valuation and the prior valuation is made to determine how closely actual experience relates to expected. During the two years since the last valuation, the total unfunded actuarial accrued liability of the System was expected to increase by \$48,994. Below is the development of the Actuarial Gain or Loss for the current 2-year period:

| Calendar Year Ending | <u>12/31/2015</u> | <u>12/31/2014</u> |
|--|-------------------|-------------------|
| Expected Unfunded Actuarial Accrued Liability | | |
| a. Unfunded Actuarial Accrued Liability, beginning of year | \$41,702,574 | \$41,582,030 |
| b. Normal cost, beginning of year | \$4,171,874 | 3,992,224 |
| c. Total contributions | 7,507,768 | 7,127,494 |
| d. Interest (full year on a. and b., one-half year on c.) | 3,264,344 | 3,255,814 |
| e. Expected Unfunded Actuarial Accrued Liability | \$41,631,024 | \$41,702,574 |
| f. Unfunded Actuarial Accrued Liability (before changes) | \$41,090,865 | |
| g. (Gain)/Loss | (\$540,159) | |
| Asset (gain)/loss | | |
| a. Actuarial value of assets, beginning of year | \$95,861,496 | \$88,826,629 |
| b. Contributions and Receipts | 7,507,768 | 7,127,494 |
| c. Benefit Payments and Expenses | (8,145,549) | (7,811,033) |
| d. Assumed rate of return | 7.75% | 7.75% |
| e. Expected return | 7,404,552 | 6,857,577 |
| f. Actuarial value of assets, end of year | 101,018,828 | 95,861,496 |
| g. Actual return | 5,795,113 | 7,718,406 |
| h. Actual rate of return | 6.07% | 8.72% |
| i. Asset (gain)/loss | \$1,609,439 | (\$860,829) |
| j. Total asset (gain)/loss, 2-year period | \$681,896 | |
| Actual Unfunded Actuarial Accrued Liability | | |
| a. Changes due to: | | |
| i) Asset (gain)/loss | \$681,896 | |
| ii) (Gain)/loss from demographic experience | (1,222,055) | |
| iii) (Gain)/loss prior to changes | (540,159) | |
| iv) Plan change - increase COLA base | 1,363,019 | |
| v) Assumption change - Mortality Improvement | 4,169,247 | |
| vi) Assumption change - Salary Scale | 1,205,844 | |
| vii) Total changes | 6,197,951 | |
| b. Unfunded Actuarial Accrued Liability, end of year | \$47,828,975 | |

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibit 3.1 - Annual Appropriations

The **Annual Appropriation** is determined in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws ("M.G.L."). The appropriation is comprised of the annual employer normal cost and amortization payments to pay the unfunded actuarial accrued liability. Below are the details of the annual appropriations for the current and prior valuations, adjusted for annual payments made each July 1. The appropriations shown are based on the results of the valuations and do not account for any adjustments made to appropriations in the selected funding schedule.

| Amortization Payments | <u>1/1/2016</u> | <u>1/1/2014</u> |
|--|------------------------|------------------------|
| a. Unfunded Actuarial Accrued Liability | | |
| Fully Funded Year | 2035 | 2038 |
| Original Balance | \$47,828,975 | \$41,582,030 |
| Amortization Amount | \$3,398,204 | \$2,527,154 |
| Remaining Payment Period (from Valuation date) | 19 | 24 |
| Balance as of valuation date | \$47,828,975 | \$41,582,030 |
| b. Total Amortization Payments | \$3,398,204 | \$2,527,154 |
| Normal Cost | \$2,042,683 | \$1,619,429 |
| Net 3(8)(c) Transfers | \$0 | \$0 |
| Total Appropriation as of January 1 | \$5,440,887 | \$4,146,583 |
| Adjusted for Payment as of July 1 | \$5,647,787 | \$4,304,265 |

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibits 3.2 and 3.3, are based on the assumptions below:

Exhibit 3.2:

- Total Normal Cost is expected to increase 4.50% per year.
- The Employee Contribution rate will increase linearly from the 2016 percentage to 10.50% by 2028 as members contributing at the lower rates are replaced by new members contributing over 9%.
- Employer Normal Cost is the difference between Total Normal Cost and Employee Contributions.
- The Unfunded Actuarial Accrued Liability ("UAL") is computed as of January 1 of each year assuming no future gains or losses.
- The Amortization Payment of UAL is to be paid over 19 years through 2035.
- Total Employer Cost is the sum of the Employer Normal Cost and the Amortization of the UAL, both computed as of January 1 of each year and adjusted for annual payments made on July 1.
- For fiscal year 2017, we show the actual appropriation developed under the previous funding schedule of \$4,468,111. For the following fiscal years, Total Employer Cost is the sum of the Employer Normal Cost and the Amortization Payments of the UAL, both computed as of January 1 of each year and adjusted for annual payments made on July 1. The increase in annual appropriations is further limited to 6.5% per year.

Exhibit 3.3:

- Expected benefit payments include payments expected to be made to retired members, beneficiaries, disabled members and active members expected to retire. In addition, expected benefit payments include distribution of the annuity savings fund attributed to inactive members.
- Benefit payments exclude cost-of-living increases granted to members in pay status between 1982 and 1997. In addition, benefit payments are as expected for the first ten years of the forecast, then increase by the greater of 4.50% per year thereafter or the expected future payments for the current population projected by our computer model.
- Calendar year cash flow entries are developed as of each January 1.

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibit 3.2 - 30-Year Forecast of Annual Appropriations

| Fiscal Year Ending | Total Normal Cost | Employee Contributions | Employer Normal Cost | Amortization Payment of UAL | Net 3(8)(c) Transfers | Total Employer Cost | Increase over Prior Year | UAL as of January 1 |
|--------------------------|----------------------|---------------------------|----------------------------|-----------------------------------|--------------------------|---------------------------|--------------------------------|------------------------|
| 2017 | \$4,958,988 | \$2,838,628 | \$2,120,360 | \$2,347,751 | \$0 | \$4,468,111 | | \$47,828,975 |
| 2018 | 5,182,142 | 3,015,821 | 2,166,321 | 2,592,217 | - | 4,758,538 | 6.50% | 49,098,691 |
| 2019 | 5,415,339 | 3,203,213 | 2,212,126 | 2,855,717 | - | 5,067,843 | 6.50% | 50,213,048 |
| 2020 | 5,659,029 | 3,401,363 | 2,257,666 | 3,139,587 | - | 5,397,253 | 6.50% | 51,140,248 |
| 2021 | 5,913,685 | 3,610,861 | 2,302,824 | 3,445,250 | - | 5,748,074 | 6.50% | 51,844,641 |
| 2022 | 6,179,801 | 3,832,325 | 2,347,476 | 3,774,222 | - | 6,121,698 | 6.50% | 52,286,338 |
| 2023 | 6,457,892 | 4,066,409 | 2,391,483 | 4,128,126 | - | 6,519,609 | 6.50% | 52,420,784 |
| 2024 | 6,748,497 | 4,313,800 | 2,434,697 | 4,508,688 | - | 6,943,385 | 6.50% | 52,198,288 |
| 2025 | 7,052,179 | 4,575,222 | 2,476,957 | 4,917,747 | - | 7,394,704 | 6.50% | 51,563,516 |
| 2026 | 7,369,526 | 4,851,437 | 2,518,089 | 5,357,271 | - | 7,875,360 | 6.50% | 50,454,934 |
| 2027 | 7,701,155 | 5,143,246 | 2,557,909 | 5,829,349 | - | 8,387,258 | 6.50% | 48,804,200 |
| 2028 | 8,047,707 | 5,451,494 | 2,596,213 | 6,336,217 | - | 8,932,430 | 6.50% | 46,535,504 |
| 2029 | 8,409,854 | 5,777,069 | 2,632,785 | 6,880,252 | - | 9,513,037 | 6.50% | 43,564,841 |
| 2030 | 8,788,298 | 6,037,037 | 2,751,261 | 7,380,125 | - | 10,131,386 | 6.50% | 39,799,229 |
| 2031 | 9,183,771 | 6,308,703 | 2,875,068 | 7,839,472 | - | 10,714,540 | 5.76% | 35,222,901 |
| 2032 | 9,597,041 | 6,592,595 | 3,004,446 | 8,153,051 | - | 11,157,497 | 4.13% | 29,815,092 |
| 2033 | 10,028,908 | 6,889,263 | 3,139,645 | 8,479,174 | - | 11,618,819 | 4.13% | 23,662,675 |
| 2034 | 10,480,209 | 7,199,279 | 3,280,930 | 8,818,340 | - | 12,099,270 | 4.14% | 16,694,921 |
| 2035 | 10,951,819 | 7,523,247 | 3,428,572 | 9,171,074 | - | 12,599,646 | 4.14% | 8,835,102 |
| 2036 | 11,444,650 | 7,861,793 | 3,582,857 | - | - | 3,582,857 | -71.56% | - |
| 2037 | 11,959,659 | 8,215,573 | 3,744,086 | - | - | 3,744,086 | 4.50% | - |
| 2038 | 12,497,844 | 8,585,274 | 3,912,570 | - | - | 3,912,570 | 4.50% | - |
| 2039 | 13,060,247 | 8,971,611 | 4,088,636 | - | - | 4,088,636 | 4.50% | - |
| 2040 | 13,647,958 | 9,375,334 | 4,272,624 | - | - | 4,272,624 | 4.50% | - |
| 2041 | 14,262,116 | 9,797,225 | 4,464,891 | - | - | 4,464,891 | 4.50% | - |
| 2042 | 14,903,911 | 10,238,099 | 4,665,812 | - | - | 4,665,812 | 4.50% | - |
| 2043 | 15,574,588 | 10,698,813 | 4,875,775 | - | - | 4,875,775 | 4.50% | - |
| 2044 | 16,275,444 | 11,180,261 | 5,095,183 | - | - | 5,095,183 | 4.50% | - |
| 2045 | 17,007,838 | 11,683,372 | 5,324,466 | - | - | 5,324,466 | 4.50% | - |
| 2046 | 17,773,191 | 12,209,124 | 5,564,067 | - | - | 5,564,067 | 4.50% | - |

SECTION 3 - CHAPTER 32 OF M.G.L. APPROPRIATIONS

Exhibit 3.3 - 30-Year Forecast of Cash Flow

| Calendar Year | Assets, BOY | Benefit Payments | Employee Contributions | Employer Contributions | Investment Return | Assets, EOY |
|---------------|--------------|------------------|------------------------|------------------------|-------------------|---------------|
| 2016 | \$95,570,393 | \$9,723,988 | \$2,734,638 | \$4,304,427 | \$7,302,665 | \$100,188,135 |
| 2017 | 100,188,135 | 9,302,780 | 2,905,340 | 4,584,214 | 7,694,318 | 106,069,227 |
| 2018 | 106,069,227 | 10,015,741 | 3,085,867 | 4,882,188 | 8,141,017 | 112,162,558 |
| 2019 | 112,162,558 | 10,686,731 | 3,276,758 | 5,199,531 | 8,606,944 | 118,559,060 |
| 2020 | 118,559,060 | 11,171,026 | 3,478,581 | 5,537,500 | 9,104,823 | 125,508,938 |
| 2021 | 125,508,938 | 11,713,206 | 3,691,932 | 5,897,437 | 9,644,644 | 133,029,745 |
| 2022 | 133,029,745 | 12,204,442 | 3,917,441 | 6,280,770 | 10,232,064 | 141,255,578 |
| 2023 | 141,255,578 | 12,690,204 | 4,155,769 | 6,689,021 | 10,875,798 | 150,285,962 |
| 2024 | 150,285,962 | 13,152,249 | 4,407,614 | 7,123,807 | 11,584,355 | 160,249,489 |
| 2025 | 160,249,489 | 13,539,938 | 4,673,710 | 7,586,855 | 12,369,760 | 171,339,876 |
| 2026 | 171,339,876 | 14,149,235 | 4,954,829 | 8,080,000 | 13,235,657 | 183,461,127 |
| 2027 | 183,461,127 | 14,785,951 | 5,251,785 | 8,605,200 | 14,182,240 | 196,714,401 |
| 2028 | 196,714,401 | 15,451,319 | 5,565,432 | 9,164,538 | 15,217,414 | 211,210,466 |
| 2029 | 211,210,466 | 16,146,628 | 5,815,877 | 9,760,233 | 16,346,704 | 226,986,652 |
| 2030 | 226,986,652 | 16,873,226 | 6,077,591 | 10,322,025 | 17,573,113 | 244,086,155 |
| 2031 | 244,086,155 | 17,632,521 | 6,351,083 | 10,748,754 | 18,896,036 | 262,449,507 |
| 2032 | 262,449,507 | 18,425,984 | 6,636,882 | 11,193,177 | 20,316,745 | 282,170,327 |
| 2033 | 282,170,327 | 19,255,153 | 6,935,541 | 11,656,027 | 21,842,486 | 303,349,228 |
| 2034 | 303,349,228 | 20,121,635 | 7,247,641 | 12,138,072 | 23,481,048 | 326,094,354 |
| 2035 | 326,094,354 | 21,027,109 | 7,573,785 | 3,451,603 | 24,884,746 | 340,977,379 |
| 2036 | 340,977,379 | 21,973,329 | 7,914,605 | 3,606,925 | 26,020,740 | 356,546,320 |
| 2037 | 356,546,320 | 22,962,129 | 8,270,762 | 3,769,237 | 27,209,107 | 372,833,297 |
| 2038 | 372,833,297 | 23,995,425 | 8,642,946 | 3,938,853 | 28,452,303 | 389,871,974 |
| 2039 | 389,871,974 | 25,075,219 | 9,031,879 | 4,116,101 | 29,752,897 | 407,697,632 |
| 2040 | 407,697,632 | 26,203,604 | 9,438,314 | 4,301,325 | 31,113,588 | 426,347,255 |
| 2041 | 426,347,255 | 27,382,766 | 9,863,038 | 4,494,885 | 32,537,200 | 445,859,612 |
| 2042 | 445,859,612 | 28,614,990 | 10,306,874 | 4,697,156 | 34,026,695 | 466,275,347 |
| 2043 | 466,275,347 | 29,902,665 | 10,770,684 | 4,908,527 | 35,585,181 | 487,637,074 |
| 2044 | 487,637,074 | 31,248,285 | 11,255,365 | 5,129,410 | 37,215,912 | 509,989,476 |
| 2045 | 509,989,476 | 32,654,458 | 11,761,856 | 5,360,234 | 38,922,305 | 533,379,413 |

SECTION 4 - REQUIRED DISCLOSURES

Exhibit 4.1 - GASB 67 and GASB 68 Disclosures

In June 2012, the GASB approved two related Statements that significantly changed the way pension plans and governments account and report pension liabilities. Effective for plans with fiscal years beginning after June 15, 2013, GASB Statement No. 67, *Financial Reporting for Pension Plans*, replaced the requirements of Statement No. 25 and effective for employers with fiscal years beginning after June 15, 2014, GASB Statement No. 68, *Accounting and Financial Reporting for Pensions*, replaced the requirements of Statement No. 27.

The new pension standards reflect changes from those currently in place regarding how governments calculate total pension liability and pension expense. Further, the new standards contain requirements for disclosing information in the notes to financial statements and presenting required supplementary information following the notes.

GASB 67 requires defined benefit pension plans, such as the Hingham Contributory Retirement System, to present a statement of fiduciary net position (pension plan assets) and a statement of changes in fiduciary net position. Further, the statement requires that notes to financial statements include descriptive information such as the types of benefits provided, the classes of plan members covered and the composition of the pension plan's retirement board. Finally, GASB 67 requires pension plans to present in required supplementary information the sources of the changes in the net pension liability and information about the actuarially determined contributions compared with the actual contributions made to the plan and related ratios.

GASB 67 and GASB 68 require projected benefit payments be discounted to their actuarial present value using the single rate that reflects:

- (1) a long-term expected rate of return on pension plan investments *to the extent that the pension plan's assets are sufficient to pay benefits and pension plan assets are expected to be invested using a strategy to achieve that return and*
- (2) a tax-exempt, high-quality municipal bond rate *to the extent that the conditions for use of the long-term expected rate of return are not met.*

GASB 68 establishes standards for measuring and recognizing liabilities, deferred outflows of resources, deferred inflows of resources and pension expense by state and local governments.

The effective date for GASB 67 is for plan years beginning after June 15, 2013, which is fiscal year ending December 31, 2014 for the Hingham Contributory Retirement System. The effective date for GASB 68 is for employers' fiscal years beginning after June 15, 2014. The GASB report, submitted under separate cover and prepared as of December 31, 2015 (the measurement date), presents information to assist the Hingham Contributory Retirement System in providing the required information under GASB 68 to participating employers.

SECTION 4 - REQUIRED DISCLOSURES

Exhibit 4.2 - PERAC Disclosures

The most recent actuarial valuation of the System was prepared by KMS Actuaries, LLC as of January 1, 2016.

| | | |
|---|-------------|-----------------|
| The normal cost for employees on that date was: | \$2,734,638 | 9.1% of payroll |
| The normal cost for the employer was: | \$2,042,683 | 6.8% of payroll |

| | |
|---|---------------|
| The actuarial liability for active members was: | \$75,455,949 |
| The actuarial liability for retired and inactive members was: | 73,391,854 |
| Total actuarial liability: | \$148,847,803 |
| System assets as of that date: | \$101,018,828 |
| Unfunded actuarial accrued liability: | \$47,828,975 |

| | |
|--|-------|
| The ratio of System assets to total actuarial accrued liability was: | 67.9% |
|--|-------|

The principal actuarial assumptions used in the valuation are as follows:

| | |
|--------------------------|--|
| Investment Return: | 7.75% |
| Rate of Salary Increase: | Group 1: 6%-4.25%, based on service Group 4: 7%-4.75%, based on service |

SECTION 5 - SUMMARY OF PLAN PROVISIONS

Administration There are 105 contributory retirement systems for public employees in Massachusetts. Each system is governed by a retirement board and all boards, although operating independently, are governed by Chapter 32 of the Massachusetts General Laws and other applicable statutes. This law in general provides uniform benefits, uniform contribution requirements and a uniform accounting and funds structure for all systems.

Participation Participation is mandatory for all full-time employees. Eligibility with respect to part-time, provisional, temporary, seasonal or intermittent employment is governed by regulations promulgated by the local retirement board, and approved by PERAC. Membership is optional for certain elected officials.

There are four classes of membership in the Retirement System:

- | | |
|----------|--|
| Group 1: | General employees, including clerical, administrative, technical and all other employees not otherwise classified. |
| Group 2: | Certain specified hazardous duty positions. |
| Group 3: | State police officers and inspectors. |
| Group 4: | Local police officers, firefighters and other specified hazardous positions. |

For members in more than one group, participation will be proportional.

Member Contributions Member contributions vary depending on the most recent date of membership:

| | |
|--|---|
| Prior to 1975: | 5% of Salary |
| 1975 – 1983: | 7% of Salary |
| 1984 – June 30, 1996: | 8% of Salary |
| July 1, 1996 – present: | 9% of Salary |
| 1979 – present: | An additional 2% of Salary in excess of \$30,000. |
| Group 1 members hired on or after April 2, 2012: | 6% of Salary with 30 or more years of creditable service. |

Rate of Interest Interest on regular deductions made after January 1, 1984 is a rate established by PERAC in consultation with the Commissioner of Banks. The rate is obtained from the average rates paid on individual savings accounts by a representative sample of at least ten financial institutions.

SECTION 5 - SUMMARY OF PLAN PROVISIONS

| | |
|---------------------------|--|
| Retirement Age | The mandatory retirement age for some Group 2 and Group 4 members is age 65. Most Group 2 and Group 4 members may remain in service after reaching age 65. Group 4 members who are employed in certain public safety positions are required to retire at age 65. There is no mandatory retirement age for members in Group 1. |
| Salary | Gross regular compensation. This does not include bonuses, overtime, severance pay, unused sick leave credit or other similar compensation. |
| Average Salary | <p>Membership before April 2, 2012: Average annual rate of regular compensation received during the three consecutive years that produce the highest average, or, if greater, during the last three years (whether or not consecutive) preceding retirement.</p> <p>Membership on or after April 2, 2012: Average annual rate of regular compensation received during the five consecutive years that produce the highest average, or, if greater, during the last five years (whether or not consecutive) preceding retirement.</p> |
| Creditable Service | The period during which a member contributes to the retirement system plus certain periods of military service and "purchased" service. |
| Benefit Rate | The benefit rate varies with the member's retirement age, Group, membership date and years of creditable service at retirement. Each year a member retires prior to the age at which the 2.5% maximum benefit rate applies, a reduction is applied to each year of age under the maximum age. The maximum age and reduction for each Group and membership date is as follows: |

| | <u>Group 1</u> | <u>Group 2</u> | <u>Group 4</u> |
|--|----------------|----------------|----------------|
| 2.5% for Membership before April 2, 2012: | | | |
| Maximum age: | 65 | 60 | 55 |
| Reduction: | 0.1% | 0.1% | 0.1% |
| 2.5% for Membership on or after April 2, 2012 (less than 30 years of service): | | | |
| Maximum age: | 67 | 62 | 57 |
| Reduction: | 0.15% | 0.15% | 0.15% |
| 2.5% for Membership on or after April 2, 2012 (30+ years of service): | | | |
| Maximum age: | 67 | 62 | 57 |
| Reduction: | 0.125% | 0.125% | 0.125% |

Hingham Contributory Retirement System
Actuarial Valuation as of January 1, 2016

SECTION 5 - SUMMARY OF PLAN PROVISIONS

| | | |
|------------------------------------|--|--|
| Superannuation Retirement | Eligibility if membership before April 2, 2012: | <ul style="list-style-type: none"> • completion of 20 years of Creditable Service, or • attainment of age 55 if hired prior to 1978, or • attainment of age 55 with 10 years of Creditable Service, if hired after 1978. |
| | Eligibility if membership on or after April 2, 2012: | <ul style="list-style-type: none"> • attainment of age 60 with 10 years of Creditable Service if classified in Group 1 • attainment of age 55 with 10 years of Creditable Service if classified in Group 2 • attainment of age 55 if hired prior to 1978 or if classified in Group 4 |
| | Benefit Amount | Product of the member's Benefit Rate, Average Salary and Creditable Service. |
| | Maximum Benefit | 80% of the member's Average Salary. |
| | Veteran's Benefit | Additional benefit of \$15 per year of Creditable Service, up to a maximum of \$300. |
| Deferred Vested | Eligibility | <ul style="list-style-type: none"> • completion of ten or more years of Creditable Service. • elected officials hired prior to 1978, completion of six years of Creditable Service. |
| | Benefit Amount | Accrued benefit payable commencing at age 55, or the completion of 20 years of Creditable Service, or may be deferred until later at the participant's option. |
| Withdrawal of Contributions | | <p>Contributions may be withdrawn upon termination of employment.</p> <ul style="list-style-type: none"> • Members hired on or after January 1, 1984 who terminate with less than ten years of Creditable Service receive contributions plus interest on the Annuity Savings Account at an annual rate of 3%. • All other withdrawals receive contributions plus 100% of the regular interest that has accrued to the Annuity Savings Account. |

SECTION 5 - SUMMARY OF PLAN PROVISIONS

| | | |
|---|--|--|
| Ordinary Disability Retirement | Eligibility | Non-job related disability after completion of ten years of Creditable Service. |
| | Benefit Amount for Group 1 membership before April 2, 2012 or Group 2 or Group 4 | Superannuation benefit determined if the member is age 55, up to a maximum of 80% of Average Salary over three years. If the member is a veteran, 50% of final rate of salary (final year) plus an annuity based on the accumulated member contributions plus credited interest, up to a maximum of 80% of Average Salary over five years. |
| | Benefit Amount for Group 1 membership on or after April 2, 2012 | Superannuation benefit determined if the member is age 60, up to a maximum of 80% of Average Salary over three years. If the member is a veteran, 50% of final rate of salary (final year) plus an annuity based on the accumulated member contributions plus credited interest, up to a maximum of 80% of Average Salary over five years. |
| Accidental Disability Retirement | Eligibility | Disabled as a result of an accident in the performance of duties. There is no minimum age or service requirement. |
| | Benefit Amount | 72% of Salary plus an annuity based on accumulated member contributions plus credited interest. |
| | Maximum Benefit | 100% of Salary if hired before January 1, 1988, otherwise 75% of Salary. |
| | Veteran's Benefit | Additional allowance of \$15 per year of Creditable Service, up to a maximum of \$300. |
| | Supplemental | Additional allowance of \$415 per year for each child. |
| Non-Occupational Death | Eligibility | For members with at least two years of creditable service who die while in active service, but not due to occupational injury. |
| | Benefit Amount | Benefit as if Option C had been elected. Minimum benefit of \$250 per month for surviving spouse, \$120 per month for first child and \$90 per month for each additional child. |

SECTION 5 - SUMMARY OF PLAN PROVISIONS

| | | |
|---|---|---|
| Accidental Death | Eligibility | For members who die as a result of an occupational injury. |
| | Benefit Amount | 72% of Salary plus an annuity based on accumulated member contributions plus credited interest. |
| | Maximum Benefit | 100% of Salary if hired before January 1, 1988, otherwise 75% of Salary. |
| | Veteran's Benefit | Additional allowance of \$15 per year of creditable service, up to a maximum of \$300. |
| | Supplemental Dependent Allowance | Additional allowance of \$708.60 per year for each child until age 18 (or age 22 if a full-time student). |
| Cost-of-Living Adjustment (COLA) | In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a Cost-of-Living Adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees and beneficiaries who have been receiving benefit payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is \$13,000, increased from \$12,000 effective July 1, 2015. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the Commonwealth of Massachusetts and are not the liability of the Retirement System. | |
| Optional Forms of Payment | A member may elect to receive his or her retirement allowance, payable in monthly installments, in one of three forms of payment: | |
| | <ul style="list-style-type: none">• Option A – Total annual allowance commencing at retirement and terminating at member's death. | |
| | <ul style="list-style-type: none">• Option B – A reduced annual allowance commencing at retirement with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member. | |
| | <ul style="list-style-type: none">• Option C – A reduced annual allowance commencing at retirement with 66⅔% of benefit continued to designated beneficiary upon death of member. For members who retired on or after January 12, 1988, if the beneficiary pre-deceases the retiree, the benefit payable increases based on the factor used to determine the Option C benefit at retirement. | |

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Valuation Date: January 1, 2016

Investment Return: 7.75% per year.

The investment return assumption is a long-term assumption based on capital market expectations by asset class, historical returns and professional judgment. We considered analysis prepared by PRIM's investment advisor using a building block approach and using the target asset allocation, expected returns by asset class and risk analysis to determine a long-term expected average annual rate of return.

Annuity Savings Fund Interest Rate: 3.00% per year

Amortization Method: *Unfunded Actuarial Accrued Liability (UAL):*
Increasing dollar amount at 4.00% to reduce the Unfunded Actuarial Accrued Liability to zero on or before June 30, 2035.

Salary Scale: The assumed annual rates for salary increases including longevity are illustrated by the following rates:

| <u>Service</u> | <u>Groups 1 and 2</u> | <u>Group 4</u> |
|--------------------|-----------------------|----------------|
| 0 | 6.00% | 7.00% |
| 1 | 5.50% | 6.50% |
| 2 | 5.50% | 6.00% |
| 3 | 5.25% | 5.75% |
| 4 | 5.25% | 5.25% |
| 5 | 4.75% | 5.25% |
| 6 | 4.75% | 4.75% |
| 7 | 4.50% | 4.75% |
| 8 | 4.50% | 4.75% |
| 9 | 4.25% | 4.75% |
| Previous valuation | 4.00% | 4.00% |

The salary scale assumption is a long-term estimate derived from historical data, current and recent market expectations and professional judgment.

Cost-of-Living Allowance: Cost-of-Living Allowances (COLA) are assumed to be 3% of the pension amount, capped at \$390 per year. Previously, 3% of the pension amount, capped at \$360 per year.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Mortality Table:

RP-2000 Mortality Table (base year 2009) with full generational mortality improvement using Scale BB. For disabled members, RP-2000 Mortality Table (base year 2012) with full generational mortality improvement using Scale BB. Previously, RP-2000 Mortality Table Projected to 2014 with Scale AA for healthy annuitants and RP-2000 Mortality Table set forward two years for disabled members.

General Employees: 55% of deaths are job-related.

Police and Fire: 90% of deaths are job-related.

The underlying tables with generational mortality improvement reasonably reflect the mortality experience of the System as of the valuation date based on historical and current demographic data. Further, PERAC reviewed a sampling of a few larger local retirement systems and compared the results with the results found in performing the analysis of the State Retirement System for years 2012 - 2014. For the State Retirement System analysis, the mortality assumptions reflect the recent experience study published in 2014.

Turnover Rates:

Illustrative turnover rates are shown below:

| <u>Creditable Service</u> | <u>Groups 1 and 2</u> | <u>Group 4</u> |
|---------------------------|-----------------------|----------------|
| 0 | 0.1500 | 0.0150 |
| 10 | 0.0540 | 0.0150 |
| 20 | 0.0200 | 0.0000 |
| 30 | 0.0000 | 0.0000 |

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Disability Rates: Illustrative disability rates are shown below:

| <u>Attained Age</u> | <u>Groups 1 and 2</u> | <u>Group 4</u> |
|---------------------|-----------------------|----------------|
| 20 | 0.0001 | 0.0010 |
| 30 | 0.0003 | 0.0030 |
| 40 | 0.0010 | 0.0030 |
| 50 | 0.0019 | 0.0125 |

General Employees: 55% of disabilities are accidental and 45% are ordinary.

Police and Fire: 90% of disabilities are accidental and 10% are ordinary.

Retirement Rates: Illustrative retirement rates are shown below:

| <u>Age</u> | <u>Groups 1 and 2</u> | | <u>Group 4</u> |
|------------|-----------------------|---------------|--------------------------|
| | <u>Male</u> | <u>Female</u> | <u>Male & Female</u> |
| 50 | 0.0100 | 0.0150 | 0.0200 |
| 51 | 0.0100 | 0.0150 | 0.0200 |
| 52 | 0.0100 | 0.0200 | 0.0200 |
| 53 | 0.0100 | 0.0250 | 0.0500 |
| 54 | 0.0200 | 0.0250 | 0.0750 |
| 55 | 0.0200 | 0.0550 | 0.1500 |
| 56 | 0.0250 | 0.0650 | 0.1000 |
| 57 | 0.0250 | 0.0650 | 0.1000 |
| 58 | 0.0500 | 0.0650 | 0.1000 |
| 59 | 0.0650 | 0.0650 | 0.1500 |
| 60 | 0.1200 | 0.0500 | 0.2000 |
| 61 | 0.2000 | 0.1300 | 0.2000 |
| 62 | 0.3000 | 0.1500 | 0.2500 |
| 63 | 0.2500 | 0.1250 | 0.2500 |
| 64 | 0.2200 | 0.1800 | 0.3000 |
| 65 | 0.4000 | 0.1500 | 1.0000 |
| 66 | 0.2500 | 0.2000 | 1.0000 |
| 67 | 0.2500 | 0.2000 | 1.0000 |
| 68 | 0.3000 | 0.2500 | 1.0000 |
| 69 | 0.3000 | 0.2000 | 1.0000 |
| 70 | 1.0000 | 1.0000 | 1.0000 |

The turnover, disability and retirement rates are based on PERAC's most recent experience analysis of local retirement systems which reviewed age, gender and job group. The assumptions reflect this analysis as well as professional judgment.

SECTION 6 - ACTUARIAL ASSUMPTIONS AND METHODS

Actuarial Cost Method: Individual Entry Age Normal.

Actuarial Asset Method: The Actuarial Value of Assets is the market value of assets as of the valuation date reduced by the sum of:

- a) 80% of gains and losses of the prior year,
- b) 60% of gains and losses of the second prior year,
- c) 40% of gains and losses of the third prior year and
- d) 20% of gains and losses of the fourth prior year.

Investment gains and losses are determined by the excess or deficiency of the expected return over the actual return on the market value. The actuarial valuation of assets is further constrained to be not less than 90% or more than 110% of market value.

Census Data: Census data as of the valuation date were submitted by the Retirement Board.

Asset Data: Asset information is reported annually to the Public Employee Retirement Administration Commission by the Hingham Contributory Retirement System.

Dependents: 80% of all members will be survived by a spouse. Age assumption for spouses is that males are assumed to be three years older than females.

Administrative Expenses: The anticipated administrative expenses for the fiscal year. For Fiscal Year 2017, the administrative expenses were assumed to be \$150,000 and are anticipated to increase at 4.5% per year.

The administrative expense assumption is based on information relating to the System's administrative expenses provided by the Retirement System.

SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.1 - Active Members by Age and Years of Service as of January 1, 2016

| Age | Years of Service | | | | | | | | | Total |
|----------------|------------------|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|--------------------|--------|
| | <u>0 to 4</u> | <u>5 to 9</u> | <u>10 to 14</u> | <u>15 to 19</u> | <u>20 to 24</u> | <u>25 to 29</u> | <u>30 to 34</u> | <u>35 to 39</u> | <u>40 & up</u> | |
| Under 20 | - | - | - | - | - | - | - | - | - | 0 |
| | - | - | - | - | - | - | - | - | - | 0 |
| 20-24 | 27 | - | - | - | - | - | - | - | - | 27 |
| | 23,603 | - | - | - | - | - | - | - | - | 23,603 |
| 25 to 29 | 62 | 2 | 1 | - | - | - | - | - | - | 65 |
| | 28,211 | 75,558 | 52,660 | - | - | - | - | - | - | 30,044 |
| 30 to 34 | 27 | 21 | 8 | - | - | - | - | - | - | 56 |
| | 69,078 | 57,468 | 69,201 | - | - | - | - | - | - | 64,742 |
| 35 to 39 | 14 | 18 | 11 | 2 | - | - | - | - | - | 45 |
| | 40,557 | 63,381 | 70,619 | 101,763 | - | - | - | - | - | 59,755 |
| 40 to 44 | 19 | 13 | 11 | 9 | - | - | - | - | - | 52 |
| | 36,320 | 35,027 | 73,080 | 76,744 | - | - | - | - | - | 50,770 |
| 45 to 49 | 51 | 14 | 8 | 12 | 9 | 3 | - | - | - | 97 |
| | 31,136 | 32,626 | 48,122 | 78,776 | 74,847 | 86,663 | - | - | - | 44,418 |
| 50 to 54 | 29 | 17 | 18 | 11 | 5 | 13 | 4 | - | - | 97 |
| | 36,833 | 26,159 | 47,809 | 53,772 | 70,051 | 86,270 | 87,877 | - | - | 49,363 |
| 55 to 59 | 22 | 15 | 21 | 12 | 4 | 8 | 4 | 3 | - | 89 |
| | 26,126 | 37,797 | 43,124 | 50,537 | 60,114 | 59,389 | 69,057 | 113,869 | - | 44,800 |
| 60 to 64 | 9 | 10 | 13 | 10 | 8 | 10 | 1 | 5 | 1 | 67 |
| | 27,936 | 43,672 | 35,953 | 49,016 | 53,771 | 55,483 | 68,869 | 104,306 | 92,012 | 49,449 |
| 65 to 69 | 4 | 4 | 5 | 4 | 11 | 4 | 1 | - | 1 | 34 |
| | 60,713 | 38,753 | 32,964 | 37,578 | 46,541 | 59,498 | 90,840 | - | 104,822 | 48,782 |
| 70 & up | 3 | 4 | 3 | 3 | 2 | 3 | 1 | - | - | 19 |
| | 25,442 | 24,549 | 36,712 | 40,575 | 39,920 | 26,097 | 14,654 | - | - | 30,482 |
| Total | 267 | 118 | 99 | 63 | 39 | 41 | 11 | 8 | 2 | 648 |
| Average Salary | 34,872 | 43,326 | 51,318 | 60,312 | 58,623 | 66,530 | 72,918 | 107,892 | 98,417 | 46,573 |
| | | | | | Average Age: | | 47.7 | Average Service: | | 9.8 |

Hingham Contributory Retirement System
Actuarial Valuation as of January 1, 2016

SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.2 - Retired Plan Members and Beneficiaries Annual Pensions as of January 1, 2016

| Attained Age | Male | | Female | | Total | |
|-----------------|-------|----------------|--------|----------------|--------|----------------|
| | Count | Total Payments | Count | Total Payments | Count | Total Payments |
| <20 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-29 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30-34 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35-39 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40-44 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45-49 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50-54 | 1 | 12,231 | 2 | 43,459 | 3 | 55,690 |
| 55-59 | 5 | 125,584 | 9 | 76,196 | 14 | 201,780 |
| 60-64 | 19 | 988,931 | 15 | 165,081 | 34 | 1,154,012 |
| 65-69 | 34 | 1,409,491 | 41 | 714,166 | 75 | 2,123,657 |
| 70-74 | 21 | 623,004 | 29 | 435,692 | 50 | 1,058,696 |
| 75-79 | 21 | 663,189 | 20 | 412,658 | 41 | 1,075,847 |
| 80-84 | 14 | 432,811 | 29 | 453,758 | 43 | 886,569 |
| 85-89 | 13 | 344,223 | 16 | 217,278 | 29 | 561,501 |
| 90-94 | 7 | 116,749 | 9 | 160,318 | 16 | 277,067 |
| 95+ | 1 | 16,961 | 0 | 0 | 1 | 16,961 |
| Total | 136 | 4,733,174 | 170 | 2,678,606 | 306 | 7,411,780 |
| Average Age | 73.6 | | 74.1 | | 73.9 | |
| Average Payment | | 34,803 | | 15,757 | | 24,222 |
| | 44.4% | 63.9% | 55.6% | 36.1% | 100.0% | 100.0% |

Included in above totals is \$78,555 in State reimbursed COLAs.

SECTION 7 - PLAN MEMBER INFORMATION

Exhibit 7.3 - Disabled Plan Members Annual Pensions as of January 1, 2016

| Attained Age | Male | | Female | | Total | |
|-----------------|--------|----------------|--------|----------------|--------|----------------|
| | Count | Total Payments | Count | Total Payments | Count | Total Payments |
| <20 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20-24 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25-29 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30-34 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35-39 | 0 | 0 | 0 | 0 | 0 | 0 |
| 40-44 | 0 | 0 | 0 | 0 | 0 | 0 |
| 45-49 | 2 | 83,371 | 0 | 0 | 2 | 83,371 |
| 50-54 | 0 | 0 | 0 | 0 | 0 | 0 |
| 55-59 | 0 | 0 | 0 | 0 | 0 | 0 |
| 60-64 | 1 | 14,222 | 0 | 0 | 1 | 14,222 |
| 65-69 | 3 | 132,077 | 0 | 0 | 3 | 132,077 |
| 70-74 | 2 | 72,464 | 0 | 0 | 2 | 72,464 |
| 75-79 | 1 | 30,771 | 0 | 0 | 1 | 30,771 |
| 80-84 | 1 | 25,356 | 0 | 0 | 1 | 25,356 |
| 85-89 | 0 | 0 | 0 | 0 | 0 | 0 |
| 90-94 | 1 | 17,337 | 0 | 0 | 1 | 17,337 |
| 95+ | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 11 | 375,598 | 0 | 0 | 11 | 375,598 |
| Average Age | 69.2 | | 0.0 | | 69.2 | |
| Average Payment | | 34,145 | | - | | 34,145 |
| | 100.0% | 100.0% | 0.0% | 0.0% | 100.0% | 100.0% |

Included in above totals is \$6,807 in State reimbursed COLAs.

SECTION 8 - GLOSSARY OF TERMS

Actuarial Accrued Liability – That portion of the Actuarial Present Value of pension plan benefits which is not provided by future Normal Costs or employee contributions. It is the portion of the Actuarial Present Value attributable to service rendered as of the Valuation Date.

Actuarial Assumptions – Assumptions, based upon past experience or standard tables, used to predict the occurrence of future events affecting the commencement, amount and duration of pension benefits, such as: changes in compensation, mortality, withdrawal, disablement and retirement; rates of investment earnings and asset appreciation or depreciation; and any other relevant items.

Actuarial Cost Method (or Funding Method) – A procedure for allocating the Actuarial Present Value of all past and future pension plan benefits to the current year (Normal Cost) and the past (Actuarial Accrued Liability).

Actuarial Gain or Loss (or Experience Gain or Loss) – A measure of the difference between actual experience and that expected based upon the set of Actuarial Assumptions, during the period between the valuation date and the most recent immediately preceding valuation date.

Actuarial Present Value – The dollar value on the valuation date of all benefits expected to be paid to current members based upon the Actuarial Assumptions and the terms of the Plan.

Amortization Payment – That portion of the pension plan appropriation which represents payments made to pay interest on and the reduction of the Unfunded Accrued Liability.

Annual Statement – The statement submitted by the local retirement board to PERAC each year that describes the asset holdings and Fund balances as of December 31 and the transactions during the calendar year that affected the financial condition of the retirement system.

Annuity Reserve Fund – The fund into which total accumulated Member Contributions, including interest, is transferred at the time a member retires, and from which annuity payments are made.

Annuity Savings Fund – The fund in which Member Contributions plus interest credited are held for active members and for former members who have not withdrawn their contributions and are not yet receiving a benefit (inactive members).

Assets – The total value of the investments held by the Plan trust that are for the payment of promised benefits.

SECTION 8 - GLOSSARY OF TERMS

Cost of Benefits – The estimated payment from the pension system for benefits for the fiscal year.

Expense Fund – The fund into which the appropriation for administrative expenses is paid and from which all such expenses are paid.

Funded Ratio – The Actuarial Value of Assets expressed as a percentage of the Actuarial Accrued Liability.

Funding Schedule – The schedule based upon the most recently approved actuarial valuation which sets forth the amount which would be appropriated to the pension system in accordance with Section 22D of M.G.L. Chapter 32.

GASB – Governmental Accounting Standards Board.

Normal Cost – Total Normal Cost is that portion of the Actuarial Present Value of pension plan benefits which is expected to accrue in the current fiscal year. The Employee Normal Cost is the amount of the expected Member Contributions for the current fiscal year. The Employer Normal Cost is the difference between the Total Normal Cost and the Employee Normal Cost.

Pension Fund – The fund into which appropriation amounts as determined by PERAC are paid and from which pension benefits are paid.

Pension Reserve Fund – The fund which shall be credited with all amounts set aside by a system for the purpose of establishing a reserve to meet future pension liabilities. These amounts would include excess interest earnings.

Present Value of Future Benefits – The actuarial present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value of money and the probabilities of payment.

Special Fund for Military Service Credit – The fund which is credited with amounts paid by the retirement board equal to the amount which would have been contributed by a member during a military leave of absence as if the member had remained in active service of the retirement board. In the event of retirement or a non-job related death, such amount is transferred to the Annuity Reserve Fund. In the event of termination prior to retirement or death, such amount shall be transferred to the Pension Fund.

Total Pension Liability – The portion of the Actuarial Present Value attributable to past service in accordance with the Entry Age cost method as stipulated by GASB Statement Number 67 (GASB 67).

Unfunded Actuarial Accrued Liability – The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets.

SECTION 9 - RESULTS BY DEPARTMENT

| | Town | Light Plant | Housing Authority | SSREC | Total |
|---|-------------|-------------|----------------------|-----------|-------------|
| Summary of Member Data | | | | | |
| Active Members | 587 | 28 | 5 | 28 | 648 |
| Salary | 26,099,291 | 2,454,588 | 159,479 | 1,466,111 | 30,179,469 |
| Average Salary | 44,462 | 87,664 | 31,896 | 52,361 | 46,573 |
| Average Age | 47.7 | 51.6 | 51.6 | 41.6 | 47.7 |
| Average Service | 9.5 | 15.9 | 8.8 | 9.1 | 9.8 |
| Retired Members and Survivors | 284 | 17 | 2 | 3 | 306 |
| Annual Pensions | 6,810,814 | 503,128 | 32,864 | 64,974 | 7,411,780 |
| Average Pension | 23,982 | 29,596 | 16,432 | 21,658 | 24,222 |
| Average Age | 74.0 | 72.9 | 79.3 | 63.5 | 73.9 |
| Disabled Members | 10 | 1 | 0 | 0 | 11 |
| Annual Pensions | 334,980 | 40,618 | 0 | 0 | 375,598 |
| Average Pension | 33,498 | 40,618 | 0 | 0 | 34,145 |
| Average Age | 69.3 | 67.4 | 0.0 | 0.0 | 69.2 |
| Inactive Members | 150 | 4 | 1 | 3 | 158 |
| Annuity Savings Fund | 825,968 | 134,965 | 63,488 | 7,346 | 1,031,767 |
| Unfunded Actuarial Accrued Liability - January 1, 2016 | | | | | |
| Actuarial Accrued Liability | | | | | |
| Active Employees | 64,068,957 | 8,547,238 | 335,829 | 2,503,925 | 75,455,949 |
| Retired Members and Survivors | 63,085,107 | 4,522,151 | 244,903 | 721,558 | 68,573,719 |
| Disabled Members | 3,369,411 | 416,957 | 0 | 0 | 3,786,368 |
| Inactive Members | 825,968 | 134,965 | 63,488 | 7,346 | 1,031,767 |
| Total | 131,349,443 | 13,621,311 | 644,220 | 3,232,829 | 148,847,803 |
| Actuarial Value of Assets | 87,416,823 | 11,394,964 | 701,072 | 1,505,969 | 101,018,828 |
| Unfunded Actuarial Accrued Liability | 43,932,620 | 2,226,347 | (56,852) | 1,726,860 | 47,828,975 |
| Funded Ratio | 66.6% | 83.7% | 108.8% | 46.6% | 67.9% |
| Normal Cost - January 1, 2016 | | | | | |
| Total Normal Cost | 3,966,568 | 408,742 | 30,955 | 221,056 | 4,627,321 |
| Administrative Expenses | 128,581 | 13,250 | 1,003 | 7,166 | 150,000 |
| Total Normal Cost | 4,095,149 | 421,992 | 31,958 | 228,222 | 4,777,321 |
| Employee Normal Cost | (2,360,108) | (223,248) | (16,082) | (135,199) | (2,734,638) |
| Employer Normal Cost | 1,735,041 | 198,744 | 15,876 | 93,023 | 2,042,683 |

Hingham Contributory Retirement System
Actuarial Valuation as of January 1, 2016

SECTION 9 - RESULTS BY DEPARTMENT

30-Year Forecast of Annual Appropriations

| Year | Town | Light Plant | Housing Authority | SSREC | Total |
|------|------------|-------------|----------------------|---------|------------|
| 2017 | 3,969,783 | 275,206 | 8,459 | 214,663 | 4,468,111 |
| 2018 | 4,221,102 | 331,435 | 13,756 | 192,245 | 4,758,538 |
| 2019 | 4,502,044 | 348,157 | 13,798 | 203,844 | 5,067,843 |
| 2020 | 4,801,468 | 365,802 | 13,815 | 216,168 | 5,397,253 |
| 2021 | 5,120,589 | 384,424 | 13,802 | 229,259 | 5,748,074 |
| 2022 | 5,460,688 | 404,081 | 13,758 | 243,171 | 6,121,698 |
| 2023 | 5,823,140 | 424,837 | 13,680 | 257,952 | 6,519,609 |
| 2024 | 6,209,407 | 446,755 | 13,563 | 273,660 | 6,943,385 |
| 2025 | 6,621,036 | 469,908 | 13,406 | 290,354 | 7,394,704 |
| 2026 | 7,059,693 | 494,369 | 13,202 | 308,096 | 7,875,360 |
| 2027 | 7,527,135 | 520,218 | 12,951 | 326,954 | 8,387,258 |
| 2028 | 8,025,247 | 547,538 | 12,646 | 346,999 | 8,932,430 |
| 2029 | 8,556,027 | 576,420 | 12,283 | 368,307 | 9,513,037 |
| 2030 | 9,115,811 | 611,216 | 12,610 | 391,749 | 10,131,386 |
| 2031 | 9,642,899 | 644,643 | 13,026 | 413,972 | 10,714,540 |
| 2032 | 10,040,824 | 671,828 | 13,659 | 431,186 | 11,157,497 |
| 2033 | 10,455,217 | 700,162 | 14,322 | 449,118 | 11,618,819 |
| 2034 | 10,886,759 | 729,696 | 15,017 | 467,798 | 12,099,270 |
| 2035 | 11,336,165 | 760,480 | 15,745 | 487,256 | 12,599,646 |
| 2036 | 3,043,255 | 348,595 | 27,846 | 163,161 | 3,582,857 |
| 2037 | 3,180,201 | 364,282 | 29,099 | 170,504 | 3,744,086 |
| 2038 | 3,323,311 | 380,675 | 30,408 | 178,176 | 3,912,570 |
| 2039 | 3,472,861 | 397,805 | 31,776 | 186,194 | 4,088,636 |
| 2040 | 3,629,138 | 415,707 | 33,206 | 194,573 | 4,272,624 |
| 2041 | 3,792,448 | 434,413 | 34,701 | 203,329 | 4,464,891 |
| 2042 | 3,963,109 | 453,962 | 36,262 | 212,479 | 4,665,812 |
| 2043 | 4,141,451 | 474,390 | 37,894 | 222,040 | 4,875,775 |
| 2044 | 4,327,814 | 495,738 | 39,599 | 232,032 | 5,095,183 |
| 2045 | 4,522,566 | 518,046 | 41,381 | 242,473 | 5,324,466 |
| 2046 | 4,726,081 | 541,358 | 43,243 | 253,385 | 5,564,067 |

SECTION 9 - RESULTS BY DEPARTMENT

Allocation of Actuarial Value of Assets

| Department | Town | Light Plant | Housing Authority | SSREC | Total |
|---|-------------|-------------|----------------------|-----------|-------------|
| Actuarial Value of Assets, January 1, 2015 | | | | | |
| AVA, 1/1/2014 | 77,305,926 | 10,005,692 | 575,470 | 939,541 | 88,826,629 |
| Contributions | | | | | |
| Member | 2,313,246 | 229,899 | 51,084 | 128,724 | 2,722,953 |
| Employer | 3,845,487 | 246,899 | 3,487 | 86,586 | 4,182,459 |
| Other Receipts | 198,069 | 15,334 | 1,755 | 6,924 | 222,082 |
| Benefit Payments | (6,410,993) | (536,972) | (31,735) | (74,580) | (7,054,280) |
| Refunds | - | - | - | - | - |
| Other Disbursements | (687,744) | (57,604) | (3,404) | (8,001) | (756,753) |
| Investment Return | 6,710,925 | 868,314 | 51,121 | 88,046 | 7,718,406 |
| AVA, 1/1/2015 | 83,274,916 | 10,771,562 | 647,778 | 1,167,240 | 95,861,496 |
| Actuarial Value of Assets, January 1, 2016 | | | | | |
| AVA, 1/1/2015 | 83,274,916 | 10,771,562 | 647,778 | 1,167,240 | 95,861,496 |
| Contributions | | | | | |
| Member | 2,434,461 | 239,823 | 37,839 | 127,683 | 2,839,806 |
| Employer | 3,890,017 | 272,180 | 8,714 | 210,350 | 4,381,261 |
| Other Receipts | 251,104 | 20,328 | 1,848 | 13,421 | 286,701 |
| Benefit Payments | (6,958,611) | (523,807) | (32,479) | (85,290) | (7,600,187) |
| Refunds | - | - | - | - | - |
| Other Disbursements | (499,324) | (37,587) | (2,331) | (6,120) | (545,362) |
| Investment Return | 5,024,260 | 652,465 | 39,703 | 78,685 | 5,795,113 |
| AVA, 1/1/2016 | 87,416,823 | 11,394,964 | 701,072 | 1,505,969 | 101,018,828 |